

**1. Enamel is formed by**

- a. Mast cells
- b. Odontoblast cell
- c. Mesenchymal
- d. Fibroblasts

**e. Ameloblast cell**

**2. Enamel is soluble when exposed to**

- a. Hypertonic medium.

**b. Acid medium.**

- c. Alkaline medium.
- d. Both a and b.
- e. Both a and c.

**3. There are a thousand enamel rods per square millimeter.**

- a. Ten to twenty.
- b. Twenty to thirty.

**c. Thirty to forty.**

- d. Forty to fifty.
- e. Fifty to sixty.

**4. Carious cervical lesion detected easily through can be**

**a. Visual examination (change of the color and softness of the cervical tooth surface).**

- b. Radiographic examination.
- c. Increased dentinal sensitivity to cold and hot stimuli.
- d. Both a and b.

e. All of the above.

**5- The fact that pain inducers such as bradykinin fail to induce pain when applied to dentine, and bathing dentine with local anesthetic solutions does not prevent pain refutes the sensitivity theory of dentin**

a. Thermal shock

b. Odontoblast's receptors

**c. Direct innervation**

d. Hydrodynamic

e. None of the above

**6- Choose the correct statement(s):**

a. Brushing teeth immediately following acidic drinks can increase the wear of enamel.

b. One of the factors affecting abrasion is the duration and intensity of brushing.

c. In patients with bruxism, the cervical enamel rods may fracture secondary to transmitted stresses when teeth flex under occlusal load.

**d. All the above statements are correct.**

e. Both a and b are correct

**7- Prophylactic treatment is indicated for NCCLs**

a. When esthetic is compromised.

b. To control or reduce sensitivity.

c. When the lesion is not extensive and asymptomatic.

d. All of the above.

e. None of the above.

**8. Past dental history is important because**

a. It expresses the patient's problem in his own words.

**b.) It provides useful information about patient's tolerance for dental treatment**

- c. The dentist can assure the patient that his problem will not be ignored.
- d. All of the above.
- e. None of the above.

**9-The first layer of dentin secreted adjacent to the cell bodies of odontoblasts during primary dentinogenesis is called---**

- a. sclerotic dentin
- b. Secondary dentin
- c. Mantle dentin

**d. Predentin**

- e. Reactionary dentin

**10- Choose the correct statement(s) regarding secondary and tertiary dentin**

- a. Both of them are formed only by primary odontoblast cells.
- b. Both of them always showed regular dentinal tubule orientation.

**c. Tertiary dentin has lower permeability compared to secondary dentin.**

- d. All of the above.
- e. None of the above.

**11. Choose the correct statement(s):**

- a. It is essential to evaluate the radiograph, especially in case of unusual tooth discoloration.
- b. The radiograph is an important tool to detect the level of supporting alveolar bone.
- c. During radiographic evaluation, it is important to note overhanging restoration, open contacts, and periapical radiolucencies.

**d. All of the above.**

e. None of the above.

**12- Clinically, dentin could be distinguished from enamel because dentin is**

**a. Slightly darker, tends to catch by explorer, and has dull light reflectance.**

b. Slightly darker, softer, and appears more shiny than enamel.

c. Softer, has a higher pitched sound on moving explorer tip.

d. Yellow-white in color, harder, and less reflective to light.

e. None of the above.

**13. The occlusal compressive forces and tensile stresses that cause flexure in the cervical are called**

a. Erosion

**b. Abfraction**

c. Abrasion

d. All the above

e. None of the above

**14. Treatment of a pulp polyp when there is no necrosis in the pulp is.**

a. Root canal treatment

b. Full Pulpotomy

c. Extraction

**d. Cvek pulpotomy**

e. Direct pulp capping

**15- Choose the wrong statement(s)**

a. Enamel is as hard as steel.

b. A deep fissure is formed by incomplete fusion of lobes of cuspal enamel in the developing tooth.

c. When a crack extends through the dentin and the patient has pain on chewing, the tooth requires a restoration that provides complete cuspal coverage.

**d. All of the above.**

e. None of the above.

**16- Pulp vitality tests include**

a. Hot and cold application.

b. Electric pulp testing.

c. Percussion test.

**d. Both a and b.**

e. Both b and c.

**17. Gingival inflammation around the restoration could be the result of**

a. Overhanging restoration.

b. Rough proximal restoration surface.

c. Violation of the biological width.

**d. All of the above.**

e. None of the above.

**18- It is important to evaluate the periodontium treatment before restorative**

a. Through direct visual examination only.

b. As it aids the dentist in estimating the future restorations potential to impinge the biologic width.

c. Because the presence of gingival bleeding can postpone any dental composite restorative treatment.

d. Both a and b.

**e. Both b and c.**

**19. The most reliable method to detect pit and fissure caries lesions is:**

- a. Bitewing
- b. Tactile examination with a sharp probe
- c. Fiberoptic transillumination
- d. Laser

**e. Visual observation**

**20. the wavelength of a Laser beam of intense light is**

**a. 0.385-0.760  $\mu\text{m}$**

- b. 0.193  $\mu\text{m}$
- c. 10.6 $\mu\text{m}$
- d. B and c
- e. None of the above

**21- ----property makes laser light brighter than ordinary light.**

**a. Parallelism**

- b. Monochromaticity
- c. Coherence
- d. All the above
- e. None of the above

**22- The lowest c-factor is present in**

- a. Class I
- b. Class II
- c. Class III
- d. Class IV**
- e. Class VI

**23.Binds the hydrophilic filler particles to the hydrophobic organic resin.**

- a. Matrix monomer
- b. Fillers
- c. Coupling agents**
- d. Initiator Agents
- e. Inhibitors

**24. Photon Induced Photoacoustic Streaming (Er: YAG laser with 17% EDTA) is a technique recently developed to assist in:**

**a. Elimination of smear layer and remnant debris in inaccessible areas of the root canal system.**

- b. Shaping of the root canal.
- c. Disinfection of root canal system
- d. Obturation of root canal.
- e. Sealing of dentinal tubules

**25- Diode Laser in the DIAGNOdent device is used to-----**

- a. Cavity preparation
- b. Caries diagnosis**
- c. Curing of composite resin
- d. Dental bleaching
- e. Enamel etching

**26- The best results in dental bleaching were achieved with:**

- a. Diode laser.
- b. CO2 lasers
- c. Argon laser.
- d. Combination of Argon laser irradiation peroxide. And hydrogen**
- e. Diode laser in combination with hydrogen peroxide solution.

**27- Using an argon laser (488nm wavelength) for curing composite resin allows for:**

- a. Increase the curing time of dental resins.
- b. Strong bond of composite resin to the tooth.
- c. Less polymerization shrinkage.
- d. A and c.
- e. **B and c.**

**28. In NCCLs, the loss of tooth structure due to chemical action is called while the loss of tooth structure due to flexural forces is called**

**a. Erosion, abfraction.**

- b. Abrasion, abfraction.
- c. Erosion, abrasion.
- d. Abfraction, erosion.
- e. Abfraction, abrasion.

**29.The apatite crystals in dentin are**

- a. Similar in size to those in enamel.
- b. **Plate-like in shape.**
- c. Present with higher percentage compared to those in enamel.
- d. All of the above.
- e. None of the above.

**30-Reparative dentin is formed by-----**

- a. Postmitotic odontoblasts
- b. **Odontoblasts like cells**
- c. Stem cells
- d. Fibroblasts
- e. Ameloblasts

**31. -----Are formed as a result of the presence of secondary (lateral) branches of adjacent odontoblastic processes during dentinogenesis**

- a. Tome's processes
- b. Tome's fibers
- c. **Canaliculi**
- d. Dentinal tubules
- e. Liquefaction foci

**32. Which of the following restorative materials needs adhesive material ?**

- a. Glass ionomer cement
- b. Resin modified ionomer cement
- c. MTA
- d. **Compomer**
- e. None of the above

**33. Preparation of esthetic indirect restoration differ from that made of cast metal is:**

- a. No need extending the preparation further than initial defect.
- b. The cavosurface margin should be beveled.
- c. Internal line angle should be rounded.
- d. Both a and b.



**e. Both a and c.**

**34. Which statement(s) is (are) wrong about Percussion test**

- a. performed by gently tapping the occlusal or incisal surfaces of the suspected tooth and adjacent teeth with the end of the handle of a mouth mirror
- b. Pain on percussion suggests possible injury to the periodontal membrane from pulpal or periodontal inflammation
- c. Care must be taken when interpreting a positive response on maxillary teeth because teeth in close proximity to maxillary sinuses

**d. performed by rubbing the index finger along the facial and lingual mucosa overlying the apical region of the tooth**

- e. all are true

**35. Unlike amalgam**

- a. Composite restoration could be polished at the same visit
- b. Composite restoration ultra thin matrices and rings are required to attain tight inter proximal contact
- c. Composite has higher wear resistant

**d. a and b**

- e. a and c

**36. Cavity tests:**

- a. Are the first line for vital test

**b. Are last choice in case inconclusive other test**

- c. Are non-aggressive methods for vitality of teeth
- d. Uses without anesthesia
- e. All the above

**37. The properties of Enamel is/are**

- a. The hardest structure
- b. Very brittle and need to underlying layer
- c. semipermeable various fluids, ions low molecular weight substance can diffuse
- d. A and B

**e. All of above**

**38. The progression of caries increases when:**

- a. Low carbohydrate intake
- b. Inadequate fluoride consumption
- c. Low PH
- d. a and b

**e. b and c**

**39. Incremental layering technique**

- a. The placement of composite layer of less than 2 thickness
- b. The placement of composite layer of less than 4 thickness
- c. Reducing C-factor

**d. a and c**

e. b and c

**40-which statement(s) about inlay is (are) false**

**a. ensuring that the isthmus has a minimal width of 1mm to provide adequate resistance to the restoration**

- b. marginal groove should be minimal invasive as marginal enamel is useful in retention
- c. undercuts should be eliminated
- c. grooves width should 1mm
- d. all statements are true

**41. a rapid progress involving a large number of teeth. The acute lesions are lighter colored than other lesions, being light brown or gray and their carious consistency makes the excavation difficult.**

**a. Rampant caries**

- b. Chronic caries
- c. Initial caries
- d. Recurrent caries
- e. Arrested caries

**42. Advantage of composite filler include:**

- a. Reduce polymerization shrinkage
- b. Increases abrasion resistance
- c. Increase tensile and compression strength
- d. All the above**
- e. None of above

**43. Among the disadvantage of dental composite are:**

- a. polymerization expansion
- b. Sensitive
- c. Less longevity compared with amalgam

**d. b and c**

- e. All the above

**44. The advantages of indirect composite restorations over direct composite is /are**

- a. Reduced polymerization shrinkage
- b. better support on cusp
- c. more precise control of contours and contacts

**d. All the above**

- e. None of the above

**45. Micro-filled composite (when compared to macro-filled composite)**

- a. Poor mechanical wear
- b. Highly polishable
- c. Poor color stability

**d. All the above**

e. None of the above

**54. The most reliable method for evaluation of the proximal smooth surfaces for evidence of demineralization is -----**

a. Caries detector dye

b. DIAGNOdent

**c. Bitewing radiograph**

d. Visual and tactile

e. Orthodontic separators

**55. CarieScan system depends on ----- as a mechanism of action**

**a. Electric conductivity**

b. Infrared Laser Florescence

c. X-ray subtraction

d. Change in color

e. Magnification

**56. The caries removal technique that disrupts the hydrogen bonding in the partially it more friable and degraded collagen bundles of the infected dentin rendering easier to remove by scraping is -----**

a. Air abrasion

b. Ozone therapy

c. Laser

d. SMART bur

**e. Chemo-mechanical method**

**57. Developmental hypomineralisation of enamel characterized by ----**

- a. Feel rough when the tip of the probe is moved gently across the surface
- b. Located in plaque stagnation area
- c. May be discolored by extrinsic stain

**d. Smooth, glossy and less opaque surface when air dried**

- e. All the above

**58. Direct pulp capping material that dissolves over time and leaves voids is ----**

**a. Calcium hydroxide**

- b. Glass ionomer cement
- c. Biodentine
- d. Mineral trioxide aggregate
- e. Dental adhesives

**59. A tooth indicated for indirect pulp capping should present with the following----**

**a. moderately deep carious lesion**

- b. History of spontaneous pain
- c. No response to vitality test
- d. All the above
- e. None of the above

**60. The mechanism of healing of exposed pulp capped with MTA depend on ----**

**a. Disinfection of the superficial pulp**

- b. Necrosis of the superficial pulp
- c. Good isolation of wound area

- d. All the above
- e. None of the above

**61. The partial pulpotomy is better than direct pulp capping in teeth with exposed pulp as it results in -----**

- a. Less hemorrhage
- b. shorter recall periods

**c. More space for capping materials**

- d. No removal of superficial inflamed pulp tissue
- e. All the above

**62. Periodic follow-up examination of teeth with direct pulp capping should include -**

- a. Periapical radiograph
- b. Cold test and Electric pulp test
- c. Percussion test

**d. All the above**

- e. None of the above

**63. The factor that decreases the heat rise in the pulp during the cutting procedure is**

- a. Using continuous cutting

**b. Using a harder cutting tool**

- c. Using higher revolution per minute
- d. All the above
- e. None of the above

**64. lower irritation of zinc polycarboxylate cement compared to that of zinc phosphate cement to the pulp is due to ----**

- a. Faster setting time
- b. Lower pH

**c. Restricted penetration of molecule through dentin**

- d. All the above
- e. None of the above

**65. What is the nature of irritation to the pulp that may be caused by the acid etching procedure ?**

**a. Increase bacterial penetration**

- b. Increase acidity
- c. Decrease dentin permeability
- d. Mechanical irritation
- e. All the above

**66. Which one of the following restorative materials provides the perfect marginal seal?**

- a. Composite resin
- b. Dental amalgam
- c. Glass ionomer cement
- d. All the above

**e. None of the above**

**67. Pulpal damage is proportional to the amount of tooth structure removed (depth and width of the cavity). There is an inverse relationship between remaining dentin thickness and pulpal injury.**

- a. Only The first statement is true.
- b. Only the second statement is true.

**c. Both statements are true.**

- d. Both statements are false and related.
- e. Both statements are false and not related.

**68. High success of direct pulp capping cannot be achieved -----**

- a. In teeth with pulp hyperemia
- b. In teeth with acute pulpitis

c. In teeth with chronic partial pulpitis without partial necrosis

**d. In teeth with chronic partial pulpitis with partial necrosis**

e. None of the above

**69. In stepwise carious tissue removal, re-entry to remove the remaining carious tissue is performed after----**

a. 1-2 weeks

b. 4 weeks

**c. 3-6 months**

d. All the above

e. None of the above

**70. In semi-direct intra-oral technique of inlay fabrication, -----**

**a. An impression for the prepared tooth is indicated.**

b. The provisional restoration is not needed.

c. Can be performed with either resin composite or ceramic materials.

d. All of the above

e. None of the above.

**71. Through CAD/CAM technology**

a. A silicon impression is always indicated.

b. A software program is used to manipulate the digital data to create the desired contours, occlusion, and contacts of the restoration.

c. A computer-aided machine is used to fabricate the restoration

d. Both a and b.

**e. Both b and c.**

**72. Flexible model technique compared to indirect technique of composite inlay fabrication, provide---**

a. Higher cost



- b. a laboratory technician needs to make the restoration.
- c. Provisional restoration is needed

**d. Minimal clinical time**

- e. Less convenience and more trauma

**73. Studying Endodontics requires you to understand pulp biology and ----- of the diseases and injuries of the pulp and associated peri-radicular tissues**

- a. etiology
- b. diagnosis
- c. treatment
- d. prevention

**e. all the above**

**74. The primary objective of endodontic treatment is to create a biologically acceptable environment within the root canal system which allows healing of the peri-radicular tissue, this can be achieved through-----**

- a. eliminating bacteria and necrotic tissue from the coronal pulp chamber only
- b. eliminating bacteria from the radicular part of the root canal system only
- c. sealing the root canal with no matter with the coronal filling
- d. sealing the coronal filling with no requirement for root filling

**e. None of the above**

**75. The following can be considered as a contra-indicated case for endodontic treatment**

**a. Tooth with poor clinical prognosis**

- b. Tooth with good periodontal support
- c. Restorable and functional tooth
- d. Cooperative patient who is willing to receive the treatment
- e. Patient with good oral hygiene

**76. Within pulp tissue, the cell-free zone (Zone of Weil)**

a. Composed of the odontoblast cells

**b. Are rich with blood vessels and nerves**

c. Are rich with fibroblast and other pulp cells

d. Lies in the central region of the pulp

e. None of the above

**77. Type 3 root canal configuration is -----**

a. 1-1

b. 2-1

**c. 2-2**

d. 1-2

e. 2-1-2

**78. The endodontic treatment phase in which the contents of the root canal are removed and the canal is prepared to receive a filling material is ----**

a. Diagnostic

**b. Preparatory**

c. Obturation

d. A and b

e. A and c

**79. Two canals leave the pulp chamber and then join each other at the apical third to open in a single apical foramen refers to this root canal configuration -----**

a. Type 1

**b. Type 2**

c. Type 3

d. Type 4

e. Type 5

**80. Which of these phases is the first that you should start with during endodontic treatment?**

**a. Diagnostic**

- b. Preparatory
- c. Obliteration
- d. Crown restoration
- e. Follow-up

**81. The clinical test that indicated the spread of infection from the periapical area into the cortical bone and soft tissue is -----**

- b. Percussion

**b. Palpation**

- c. Probing
- d. Vitality test
- e. Tooth mobility

**82. Which one of the following etiologic factors for pulp inflammation is due to bacterial contamination?**

- a. Restorative material

**b. Anachoresis**

- c. Excessive orthodontic force
- d. External occlusal trauma
- e. Radiation therapy

**83. Which of the following can cause inflammation of the periapical periodontium?**

- a. Over instrumentation
- b. Overfilling

- c. Excessive carious lesion
- d. Occlusal trauma

**e. All the above**

**84. True denticle is -----**

**a. Pulp stone formed detached odontoblasts or fragments of Hertwig's enamel root sheath**

- b. Complete calcification of the pulp space.
- c. Pulp stone formed from degenerated tissue structures which act as a nidus mineral deposition
- d. Linear calcification within root canals
- e. None of the above

**85. Internal root resorption -----**

- a. Appears as a radiopaque region within the pulp chamber
- b. Occurs due to more minerals deposited by the inflamed pulp tissue
- c. Causes a decrease in the lumen of the pulp canal
- d. All the above

**e. None of the above**

**86. 'It is an inflammatory response of pulpal connective tissue with overgrowth of granulomatous tissue into the carious cavity' this condition represents -----**

**a. Chronic hyperplastic pulpitis**

- b. Symptomatic irreversible pulpitis
- c. Symptomatic apical periodontitis
- d. Asymptomatic apical periodontitis
- e. Internal root resorption

**87. Tooth discoloration is an obvious sign of-----**

- a. vital pulp
- b. pulp inflammation

**c. necrotic pulp**

- d. pulp calcification
- e. periapical inflammation

**88. Condensing osteitis can be diagnosed radiographically through**

- a. Presence of large periapical radiolucency in radiography
- b. Always need a treatment

**c. a concentric radio-opaque area is seen around the offending root.**

- d. none of the above
- e. all the above

**89. If a tooth is tender to percussion with contentious throbbing pain stimulated with a bite but has no swelling or history of swelling or systemic involvement, the tooth can be diagnosed as -----**

- a. Asymptomatic apical periodontitis

**b. Symptomatic apical periodontitis**

- c. Acute pulpitis
- d. Acute apical abscess
- e. Chronic apical abscess

**90. The apex of the triangular access cavity in the mandibular first molar toward which canal orifice**

- a. Mesiolingual

**b. Mesto buccal**

- c. Middle mesial
- d. Distal

e. All the above

**91. Which of the following cases cannot be endodontically treated?**

- a. Tooth with calcified canals
- b. Tooth with poor bone support
- c. Tooth with root fracture
- d. Severely broken, non restorable tooth

**e. All the above**

**92. The patient has an upper first maxillary molar with a big carious lesion but has no symptoms. It responds negatively to the vitality test and has periapical radiolucency on the radiograph. The diagnosis is -----**

- a. reversible pulpitis
- b. asymptomatic irreversible pulpitis
- c. symptomatic apical periodontitis

**d. asymptomatic apical periodontitis**

e. acute apical abscess

**93. A pink spot may be seen in the later stages of ----- if the lesion is in the crown.**

**a. Internal resorption**

- b. Necrotic pulp
- c. Reversible pulpitis
- d. Chronic apical abscess
- e. Acute apical periodontitis

**94. The periapical pathology which is associated with an open sinus tract is:**

- a. symptomatic apical periodontitis.
- b. asymptomatic apical periodontitis.

**c. chronic apical abscess.**

d. condensing osteitis.

e. chronic hyperplastic pulpitis.

**95. During access cavity preparation if the pulp horns are not completely removed:**

**a. remnants of necrotic tissue would cause discoloration of the tooth.**

b. this will affect the marginal seal of the restoration.

c. there will be pain during the bite

d. the tooth will develop post-operative sensitivity

e. fracture of the tooth after treatment

**96. Apical constriction is the widest region of the apical foramen. It is usually 0.5-1mm shorter than the radiographical apex.**

a. Both statements are true.

**b. Both statements are false.**

c. First statement is true, second statement is false

d. First statement is false, second statement is true.

e. both statements can be true or false depending on the position of tooth whether anterior or posterior

**97 . The access cavity for the maxillary 1<sup>st</sup> premolar**

a. Has a triangular shape

b. Has an ovoid shape

c. Extended buccolingually on the occlusal surface depending on the size of the pulp chamber

d. Similar to the access cavity for the maxillary 1<sup>st</sup> molar

**e. Both b and c**

**98. Round bur is used in the first entry to the pulp chamber, feeling of ---- means the bur enters the pulp chamber**

a. more resistance on the round bur during cutting.

**b. dropping of the bur during cutting.**

c. stopping of the bur during cutting.

- d. uncontrolled shifting in bur angulation.
- e. none of the above.

**99. Perforation during access cavity preparation is more likely to occur in -----**

- a. Old patient with small pulp size
- b. Tilted tooth
- c. Teeth restored by crowns, inlays, or big restorations
- d. Teeth with calcified pulp chamber

**e. All the above**

**100. For file size 20 (ISO), which statement is wrong from the following?**

- a. The D0 = 0.20 mm.

**b. The color of the handle is green.**

- c. The length of the cutting blade is 16 mm.
- d. Has a fixed taper of 0.02.
- e. Smaller than file size 30.

**101. Triangular, square, and diamond cross-sectional shapes are related to the following cutting intracanal instruments respectively**

- a. k-file, k-reamer, k-flex file.
- b. k-flex file, k-reamer, k-file.

**c. k-reamer, k-file, k-flex file.**

- d. k-reamer, k- flex file, k- file.
- e. k-file, k-flex file, k-reamer.

**102. The rubber dame frame does not interfere with X- ray because it is made from plastic is ----**

- a. Starvisi frame.
- b. Young's frame.
- c. Nygard-Ostby frame.



d. both b and c.

**e. both a and c.**

**103. This method of rubber dam placement doesn't permit direct visualization of the tooth & soft tissues during placement:**

**a. application of the clamp, rubber sheet, and frame together.**

b. application of dam sheet then the clamp.

c. application of clamp and then dam sheet.

d. application of dam without the aid of an assistant.

e. none of the above

**104. This rubber dam clamp is used with molars -----**

a. Ivory No. 9.

**b. Ivory No. 26.**

c. Ivory No. 0.

d. Ivory No. 1.

e. All the above

**105. Which of the following can decrease the possibility of file breakage during instrumentation?**

a. copious irrigation during canal preparation.

b. using new files for each canal instrumentation.

c. coronal flaring before preparation of the narrow apical regions

d. discarding any files showing signs of fatigue.

**e. all the above.**

**106. All are true about Hedstrom files except----**

a. They are made of stainless steel.

b. They are triangular in shape.

- c. They have flutes with sharp edges.
- d. They are active in pulling action.

**e. They can be used with rotation motion.**

**107. The instrumentation technique that prepares the apical third of the canal before the middle and coronal thirds is called -----**

- a. Crown down technique.

**b. Step-back technique.**

- c. Step-down technique.
- d. Balanced force technique.
- e. Standardized technique

**108. Only one of the following statements is true:**

- a. Doubling the size of the file during apical instrumentation can increase the size of apical constriction to 10 times.
- b. Step-back preparation technique can offer coronal flaring which could help to reduce the possibility for ledge formation.
- c. NaOCl is a powerful antimicrobial irrigation solution concentration of 0.5% rather than 5.25%

**d. Crown down instrumentation technique allows proper cleaning coronal part of the root canal without over-enlargement for the part apical**

- e. Losing apical constriction during instrumentation could lead to several problems such as underfilling.

**109. The watch-winding motion of the file is.....**

- a. Pulling motion of the file on the canal walls,

**b. Continuous clockwise rotation.**

- c. Continuous anticlockwise rotation.
- d. Gentle clockwise anticlockwise motion.
- e. Push and pull motion

**110. To create an apical flare with (the step-back technique) larger files are used while decreasing the working length, so the decrease in lengths between one file and the other should be -----**

a. 0.5mm.

**b. 1mm.**

c. 1.5mm

d. 2mm.

e. 3mm